


Memorandum

Date: September 5, 2003

To: Directors of Environmental Health
Medical Waste Program Managers
California Healthcare Association

From: Jack McGurk, Chief 
Environmental Management Branch

Subject: SEWER DISPOSAL OF PHARMACEUTICAL WASTE

The purpose of this memo is to clarify issues regarding the disposal of pharmaceutical wastes into wastewater sewerage systems. While the Department of Health Services' (DHS) October 15, 2002, pharmaceutical waste memo covered characterization information regarding State law, it did not address local laws, especially those of California wastewater agencies (also known as publicly owned treatment works or POTWs). This memo builds upon the earlier memo to include information regarding pharmaceutical disposal as it relates to POTWs.

The discharge of waste to sewerage systems is highly regulated throughout California by the federal Clean Water Act and by the state's Porter-Cologne Water Quality Act as codified in the Water Code. California law also prohibits the discharge of hazardous wastes to wastewater sewerage systems. POTWs have additional local authority specified in ordinances to restrict the discharge of materials to their systems. Wastes from medical facilities may not be discharged to sewers without the prior authorization of the POTW operating the sewers.

Guidance

In order to obtain authorization to discharge waste pharmaceuticals to a sewerage system, ***it is first necessary to contact the POTW that provides sewerage services in your area.*** Wastewater treatment plants are designed to remove conventional pollutants such as suspended solids and easily biodegradable organic material, not other pollutants such as pharmaceuticals. Other pollutants are only accepted by POTWs if they are compatible with the POTW's operations and discharge requirements.

The POTW will evaluate your request to ensure that the discharge is in conformance with all applicable laws and regulations and will not cause a violation of any pertinent waste discharge and/or water reclamation requirement. The POTW will also evaluate your request to ensure that the discharge does not interfere with the operation of the treatment plant, including its biological treatment processes. The POTW may require a discharger to prove that the waste is non-hazardous and/or that the



discharge of the waste to the sewerage system will not adversely affect humans or aquatic life prior to accepting a waste.

In general, specific written permission *must* be obtained from your POTW before any wastes, including pharmaceutical wastes, are sewerred.

Although each POTW has the right to deny a request to sewer a waste based on local conditions, the following wastes are generally **acceptable for sewerred**:

- Solutions in IV bags containing *only* saline solution, lactate, nutrients such as glucose (e.g., D5W), vitamins, and added salts such as potassium and/or other electrolytes.

The following Wastes are **not acceptable for sewerred**:

- Any hazardous wastes, both California-only hazardous wastes and federal hazardous wastes regulated under RCRA.

The following wastes may not be acceptable for sewerred if they contain materials known or suspected of being toxic to humans, animals, aquatic life, the environment, or to biological or other wastewater treatment processes. This will be of particular importance for POTWs engaged in water recycling or discharge to surface waters:

- Liquid and solid pharmaceutical wastes, such as IV bags containing biologically active materials (e.g., antibiotics, painkillers, and antineoplastics) and controlled substances.

In general, medical facilities are encouraged to reduce discharges of pharmaceuticals to the sewer to the extent feasible. If you have any questions about the discharge of a specific waste into the sewerage system, please contact your local POTW. To obtain contact information for your POTW, check your utility or property tax bills to see who provides your sewer service or call your city and ask who provides sewer services in your area.

Background Information.

1. *Why are pharmaceuticals in water and wastewater of concern to POTWs?*

There is increasing concern that the pharmaceuticals present in surface waters could cause various disruptive environmental effects, including endocrine disruption in aquatic life and increased antibiotic resistance. Studies have identified pharmaceuticals and chemicals in personal care products in lakes and streams nationwide, and many of these pollutants are believed to be coming from wastewater discharges. The impact of pharmaceuticals in surface waters, including effects on aquatic life development and effects on human development, is still being studied. While these studies are occurring it is reasonable and prudent to be cautious about sewerage waste pharmaceuticals.

2. *What is the Clean Water Act and how does it relate to the control of pharmaceutical wastes?*

Section 307 of the Federal Water Pollution Control Act (more commonly referred to as the Clean Water Act) called for the Environmental Protection Agency to develop national pretreatment standards to control industrial discharges into sewerage systems. Included in this program are "Prohibited Discharge Standards," which are uniform national requirements that restrict the level of pollutants that may be discharged by non-domestic sources to sanitary sewer systems. All POTWs that are required to implement a Pretreatment Program must enforce the federal standards. Prohibited Discharge Standards specifically prohibit the discharge of pollutants that cause "pass-through" or interfere with a POTW's operations. A pass-through is a discharge that, alone or in conjunction with discharges from other sources, results in non-compliance with any requirement of a POTW's discharge permit, per 40 Code of Federal Regulations, Part 403.5(a)(1). Wastewater discharge permits issued by the California Regional Water Quality Control Board for POTWs pursuant to the Clean Water Act generally contain a requirement that wastes discharged shall not contain any substances in concentrations toxic to human, animal, plant, or aquatic life. This means that no pharmaceutical wastes may be sewerage that in and of themselves, or in conjunction with other wastes discharged by businesses or households, could create a concentration of the pharmaceutical in the treatment plant effluent that, when discharged to surface or groundwater, adversely impacts humans or aquatic life. Individual POTWs have the authority to determine what wastes may adversely impact their own systems.

3. *How do California's hazardous waste regulations apply to pharmaceutical waste discharges?*

The California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) implements hazardous waste regulations in California, along with various local agencies. California does not allow hazardous wastes to be sewerage (California Code of Regulations, Sections 66261.3 and 66261.4). Hazardous wastes may be listed wastes or characteristic wastes. Listed hazardous wastes include epinephrine, nitroglycerin, and many chemotherapy agents. Characteristics that make a waste a hazardous waste include ignitability (including formulations with more than 24% alcohol,

collodion, and oxidizers such as potassium permanganate and silver nitrate), corrosivity (having a pH less than 2 or greater than 12.5), reactivity (including nitroglycerin, which is generally exempt from federal hazardous waste regulations, but not California hazardous waste regulations), and toxicity.

Although the hazardous characteristics mentioned above are chemical properties easily ascertained, a number of factors must be considered in determining if a waste exhibits the characteristic of toxicity under California standards. A group of specified chemicals must not be present in concentrations in excess of that listed in the California Code of Regulations Sections 66261.24(a)(1) and 66261.24(a)(2). The material must also not have an acute oral LD₅₀ less than 2,500 mg/kg, an acute dermal LD₅₀ less than 4,300 mg/kg, an acute inhalation LC₅₀ less than 10,000 parts per million as a gas or vapor, or an acute aquatic 96-hour LC₅₀ less than 500 mg/L when measured in soft water using fathead minnows, rainbow trout, or golden shiners. Additionally, a waste is hazardous waste if “it has been shown through experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties or persistence in the environment.” Violation of any of these criteria makes the waste a hazardous waste.

The generator of a waste has the responsibility to determine whether a waste is hazardous or not. For pharmaceutical wastes, all criteria that may reasonably be expected to make a waste a hazardous waste need to be explored before contacting a POTW to seek authorization to discharge the waste. Improper determination of whether a waste is hazardous does not shield the generator from felony criminal liability for illegal hazardous waste disposal. For more information on hazardous waste regulations and disposal, please contact DTSC (www.dtsc.ca.gov) or your local hazardous waste authority (known as a Certified Unified Program Agency or CUPA. See www.calcupa.net for a list of CUPAs in California.)